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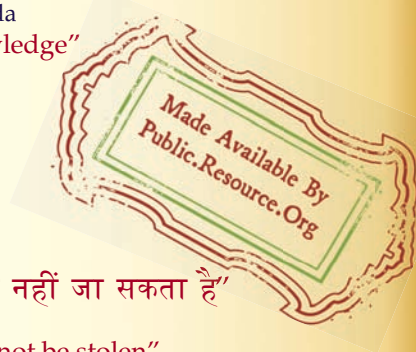
IS 16012 (2012): Poly-Laminated Aluminium Cable Wrap -
Specification [MTD 7: Light Metals and their Alloys]



“ज्ञान से एक नये भारत का निर्माण”

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“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
बहु-पटलित एल्यूमिनियम केबल
आवरक — विशिष्टि

Indian Standard
POLY-LAMINATED ALUMINIUM CABLE
WRAP — SPECIFICATION

ICS 25.220.60; 29.06.0.20; 77.150.10

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Light Metals and Their Alloys Sectional Committee had been approved by the Metallurgical Engineering Division Council.

Poly-laminated aluminium cable wrap is used for wrapping cable core consisting of conductors, insulation, filling compound, etc. As a sheath for cables, these cable wrap helps to give long-term protection against naturally occurring elements found above and below the ground. Aluminium cable wrap also acts as an insulator against the magnetic and radio frequency emission associated with electrical cables. In fibre-optic cable applications, the electrical conductivity of aluminium cable wrap means that it can be used as a tracer of enable testing of the integrity of cable links. On the request of stakeholders, the Committee decided to formulate an Indian Standard to cover the various technical requirements.

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

POLY-LAMINATED ALUMINIUM CABLE WRAP — SPECIFICATION

1 SCOPE

This standard covers the requirements of poly-laminated aluminium cable wrap.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<i>IS No.</i>	<i>Title</i>
737 : 2008	Wrought aluminium and aluminium alloy sheet and strip for general engineering purposes (<i>fourth revision</i>)
10259 : 1982	General conditions for delivery and inspection of aluminium and aluminium alloy products

3 TERMINOLOGY

For the purpose of this standard the following definition shall apply.

3.1 Poly-laminated Aluminium Cable Wrap — Aluminium sheet of rectangular cross-section, laminated on both sides with polyethylene or copolymer or a combination of copolymer and polyethylene.

4 MATERIAL

4.1 The material used for aluminium and aluminium alloy foil shall conform to the chemical composition of the Grades 19000 or 40800 of IS 737.

4.2 The material shall be supplied in fully annealed 'O' temper. If agreed by the purchaser, the material may be supplied in any other tempers.

4.3 Polyethylene for this purpose of this standard includes low density polyethylene (LDPE) and linear low density polyethylene (LLDPE).

4.4 Copolymer for the purposes of this standard is ethylene acrylic acid resin.

5 MANUFACTURE

Plastic material may be laminated to the base metal by any method that shall produce a laminate that shall conform to this standard.

6 SUPPLY OF MATERIAL

General requirements relating to the supply of poly-laminated aluminium cable wrap shall conform to IS 10259.

7 FREEDOM FROM DEFECTS

All cable wrap shall be flat, free from joints, buckles and surface defects. Unless otherwise specified, discolouration due to annealing of foil shall not be a cause of rejection.

8 PREFERRED THICKNESSES

The preferred thicknesses for the base material shall be 0.17 mm, 0.19 mm and 0.20 mm.

9 DIMENSIONS AND TOLERANCES

9.1 Thickness tolerances shall be ± 8 percent.

9.2 Width tolerances shall be ± 0.5 mm.

9.3 Length tolerances shall be $+ 10$ m.

10 PEEL STRENGTH

Peel strength of aluminium laminated cable wrap with polyethylene shall be 25 g force/mm width and with copolymer shall be 40 g force/mm width (*Min*) as per test procedure given in Annex A.

11 OTHER REQUIREMENTS

11.1 Preferred internal diameter of the core shall be 102 ± 0.5 mm.

11.2 Poly gsm tolerance shall be 46 ± 10 percent.

11.3 Total gsm tolerance shall be ± 10 percent.

12 CRITERIA FOR CONFORMITY

12.1 An inspection lot shall consist of an identifiable quantity of the same material, temper and nominal dimensions subjected to inspection at one time.

12.2 A lot shall be considered to have conformed to

the requirements of specification, if the 4 to 11 are satisfied.

13 PACKING AND MARKING

13.1 Each package of poly-laminated aluminium cable wrap shall be suitable to prevent damages during transit and handling. Marking shall be as per mutual agreement between the purchaser and the supplier. The supplier shall furnish a certificate that the material supplied complies with the requirements of this standard. Aluminium cable wrap may be suitably marked to ensure traceability for identification details such as the name of manufacturer, grade, condition of the material, batch No. and date of manufacture.

13.2 BIS Certification Marking

The foil package may also be marked with the Standard Mark.

13.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*,

1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

14 INFORMATION TO BE SUPPLIED BY THE PURCHASER

Following requirements shall be stated while specifying the aluminum laminated cable wrap:

- a) Alloy type;
- b) Laminate type (polyethylene/copoly-ethylene/copoly);
- c) Thickness of aluminium foil;
- d) Thickness of polyethylene/copoly;
- e) Width;
- f) Length;
- g) Core inside diameter; and
- h) Core type (aluminium/steel/plastic).

ANNEX A

(Clause 10)

TEST PROCEDURE FOR DETERMINATION OF PEEL STRENGTH

A-1 A parallel side test piece 150 mm long and 15 mm wide shall be cut.

A-2 Aluminium and polyethylene shall be separated at one end. In order to make this initial separation of the laminate to facilitate insertion in the grips, 25 mm of test piece the one end can be immersed in boiling industrial alcohol for about 30 s. Aluminium shall be

inserted in the fixed grip and polyethylene in the moving grip of the tensile tester.

A-3 The grips can be brought closer up to 30 mm. An electrically operated tensile tester shall be used. The rate of separation between grips shall be 100 to 125 mm/min and the steady force required to separate the materials shall be noted.

ANNEX B*(Foreword)***COMMITTEE COMPOSITION****Light Metals and Their Alloys Sectional Committee, MTD 7**

<i>Organization</i>	<i>Representative(s)</i>
Hindalco Industries Ltd, (R&D Centre) Talaja, Navi Mumbai	SHRI SUBHANKAR GUPTA (Chairman)
Aluminium Association of India, Bangalore	PROF K. S. S. MURTHY SHRI N. C. SUD (<i>Alternate</i>)
Aeronautical Development Establishment, Bangalore	SHRI G. S. RAVINDRA SHRI T. MOHAN REDDY (<i>Alternate</i>)
BEML Ltd, Bangalore	SHRI H. S. PRAKASH SHRI R. NANDA NANDAN (<i>Alternate</i>)
Bharat Aluminium Co Ltd, Korba	SHRI S. PRASAD SHRI NARAIN BALAKRISHANA (<i>Alternate I</i>) SHRI K. KARMAKAR (<i>Alternate II</i>)
CEMILAC, Bangalore	DR P. RAGOTHAN RAO SHRI KISHORE SHETTY (<i>Alternate</i>)
DGAQA, New Delhi/Bangalore	SHRI V. K. SACHDEVA SHRI V. O. JANARDHANAN (<i>Alternate</i>)
DGS&D, Kolkata/New Delhi	SHRI B. DASGUPTA SHRI M. A. KHAN (<i>Alternate</i>)
DMRL, Hyderabad	DR AMOL A. GOKHALE DR VIJAY SINGH (<i>Alternate</i>)
DRDL, Hyderabad	DR S. SUNDARRAJAN DR G. RAJA SINGH (<i>Alternate</i>)
Escorts Knowledge Management Centre, Faridabad	SHRI ALOK NAYAR
Hindalco Industries Ltd, Renukoot	SHRI PRAMOD N. KOPARDE SHRI ATUL GUPTA (<i>Alternate</i>)
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J. N. Aluminum, R&D Design Centre, Nagpur	SHRI J. MUKHOPADHYAY DR K. V. RAMANA RAO (<i>Alternate I</i>) SHRI R. N. CHAUHAN (<i>Alternate II</i>)
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National Test House, Ghaziabad	SHRI R. N. RAM SHRI VINAY SAXENA (<i>Alternate</i>)
Ordnance Factory, Ambajhari	REPRESENTATIVE
RDSO (M&C Directorate), Lucknow	SHRI RADHEY SHYAM SHRI V. D. MEHARKURE (<i>Alternate</i>)

IS 16012 : 2012

<i>Organization</i>	<i>Representative(s)</i>
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Salco Extrusions (P) Ltd, Mumbai	SHRI GOPAL M. PAI SHRIMATI POOJA KAMAT (<i>Alternate</i>)
Shri Ram Institute of Industrial Research, Delhi	DR P. K. KAICKER SHRIMATI LAXMI RAWAT (<i>Alternate I</i>) SHRI B. GOVINDAN (<i>Alternate II</i>)
BIS Directorate General	SHRI P. GHOSH, Scientist 'F' and Head (MTD) [Representing Director General (<i>Ex-officio</i>)]
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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002

Telephones : 2323 0131, 2323 3375, 2323 9402

Website: www.bis.org.in

Regional Offices:

Telephones

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg
NEW DELHI 110002

{ 2323 7617
2323 3841

Eastern : 1/14 C.I.T. Scheme VII M, V. I. P. Road, Kankurgachi
KOLKATA 700054

{ 2337 8499, 2337 8561
2337 8626, 2337 9120

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022

{ 60 3843
60 9285

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113

{ 2254 1216, 2254 1442
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Western : Manakalaya, E9 MIDC, Marol, Andheri (East)
MUMBAI 400093

{ 2832 9295, 2832 7858
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